

OCT 01 2009

Application Serial No. 10/594,466
Reply to office action of July 1, 2009

PATENT
Docket: CU-5130

REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

Claims 1-6 are pending before this amendment. By the present amendment, claim 3 is amended; and new claim 7 is added. No new matter has been added.

Embodiments of the present invention include an apparatus and method for receiving a DTV transmission with general data and robust data capable of improving robust data reception performance by using parity bytes of the robust data not only to provide backwards compatibility, but also to correct errors in the DTV transmission (specification page 9, lines 16-21). A receiver for receiving DTV signals including both general and robust data according to an embodiment of the present invention is shown in FIG. 2. As shown in FIG. 2, the robust data goes through a **nonsystematic Reed Solomon (NRS) decoder 213** after a data deinterleaver 211. The NRS decoder 213 corrects transmission error by performing **NRS decoding** before removing parity bytes added to the robust data in the packet formatter 215 (specification page 12, lines 14-18). Accordingly, with the NRS decoder, the parity bytes, which are added to ensure backwards compatibility for low-ranked receivers, can be used for error correction as described above, and an RS coding gain can be acquired (specification page 12, lines 14-18).

In the office action (page 2), claims 1-6 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,194,047 (Strolle). The "et al." suffix is omitted in the Strolle reference name.

The applicants respectfully disagree.

Claim 1 recites:

--a receiving unit for receiving a transmission signal including **general data and robust data** and converting the transmission signal into a base-band signal;
an equalizing unit for determining a symbol level of the transmission signal;
a trellis decoding unit for performing trellis decoding on a symbol of the determined level;
a nonsystematic Reed Solomon (NRS) decoding unit for performing NRS decoding on the trellis-decoded robust data and for performing robust data error correction on the trellis-decoded robust data; and

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a restoring unit for restoring a digital video data stream with respect to the trellis-decoded general data and the NRS-decoded robust data-- (emphasis added)

Accordingly, features of the present invention of claim 1 include the trellis decoding unit performing trellis decoding on a symbol of the level determined by the equalizing unit; and the **nonsystematic** Reed Solomon decoding unit for performing nonsystematic Reed Solomon decoding and robust data error correction on the trellis-decoded robust data.

In the office action (page 3), the examiner alleges that **Strolle FIG. 3A, ref. 332 and col 14, lines 32-45** discloses the claimed **trellis decoding unit**; and that **Strolle FIG. 3A, ref. 328 and col. 13, line 55-67** discloses the **nonsystematic Reed Solomon decoding unit**. However, Strolle FIG. 3A, ref. 332 and col. 14, lines 32-45 makes no mention of a trellis decoder, and instead discusses only Reed Solomon decoding. Further, Strolle FIG. 3A, ref. 328 and col 13, lines 55-67 makes no mention of Reed Solomon decoding, and instead only mentions a trellis decoder.

Regardless, it is respectfully submitted that nowhere in Strolle discloses the claimed nonsystematic Reed Solomon decoding unit.

Strolle FIG. 3A, ref. 328 and col. 13, lines 55-67 discloses a normal/robust trellis decoder 328 that performs trellis decoding on normal and robust data. The normal/robust trellis decoder does not perform nonsystematic Reed Solomon decoding or robust data error correction on trellis encoded data, and thus does not teach or disclose the --nonsystematic Reed Solomon (NRS) decoding unit-- of claim 1.

Strolle FIG. 3A, ref. 332 refers to the Reed Solomon decoder (207,187) 332. The Reed Solomon decoder operates **only on normal packets** (Strolle 14, lines 23-25). In Strolle the robust data packets **bypass** the Reed Solomon decoder 332; and in fact, **the parity bytes are stripped from the robust data packets and only information bytes are sent** (Strolle col. 14, lines 25-32). Accordingly, the applicants respectfully submit that Strolle FIG. 3A, ref. 332 does not in fact teach or disclose the nonsystematic Reed Solomon decoding unit for performing NRS decoding on the trellis-decoded robust data of the present invention of claim 1.

Strolle col. 14, lines 32-45 describes the robust post-processor 340 shown in

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FIG. 3A. The robust post-processor of Strolle performs Reed Solomon (184, 164) decoding on robust data packets after the Reed Solomon parity bytes are stripped from the packet and after the three-byte header of the packet is removed (Strolle col. 14, lines 25-45). In Strolle, the Reed Solomon (184, 164) decoding of the post processor is performed using parity bytes encapsulated in the data payload. That is, in Strolle, the MPEG standard 47 hex sync byte is removed and replaced with an FIR parity check code.

In contradistinction, in the presently claimed invention, nonsystematic Reed Solomon decoding is performed. The examiner has not addressed this feature of the present invention, and is respectfully submitted that Strolle col. 14, lines 32-45 does **not** in fact teach or disclose a nonsystematic Reed Solomon decoding unit.

That is, in the presently claimed invention, a **nonsystematic** Reed Solomon decoding unit is used (which allows that parity bytes added to ensure backwards compatibility for low ranked receivers can be used for error correction; specification page 11, lines 3-7 and page 12, lines 14-23) for error correction. As described above, the Reed Solomon decoding of Strolle is performed after parity bytes for backwards compatibility and packet header are stripped (see Strolle col. 11, lines 18-23 and col. 14, lines 25-27), and the examiner has not shown (nor can the applicants discern) anywhere in Strolle that discloses the use of a nonsystematic Reed Solomon decoder for performing robust data error correction.

The applicants thus respectfully submit that Strolle does **NOT** in fact anticipate claim 1 and request the examiner to kindly reconsider and withdraw this rejection, or else to **clearly and specifically** point out where Strolle discloses the above features in accordance with 37 C.F.R. 1:104(c)2.

Claims 2-3 depend from claim 1. The applicants respectfully submit that these claims are allowable at least by virtue of their dependency as well as the additional features recited in the claims. Additionally, the applicants offer the following comments with respect to amended claim 3.

Claim 3 has been amended solely for the purpose of clarifying the computation of

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the delay time. Claim 3 recites:

--a controller for computing a delay time that is the delay between the robust data and the general data, the delay time including delay caused by NRS decoding and packet reconstruction--

In the office action (page 4), the examiner alleges that FIG. 4, ref. 426 and FIG. 5 of Strolle disclose this element of the present invention. The applicants respectfully disagree. FIG. 4 is an additional embodiment in Strolle. Ref. 426 of Strolle is a two tier trellis decoder that performs trellis decoding on the received robust/normal signal. The applicants are unable to discern anywhere in Strolle FIG.4, ref. 426 and FIG. 5 or the accompanying description disclosing the computation of a delay time including the delay caused by NRS decoding and packet reconstruction. It is respectfully submitted that Strolle does not in fact disclose the --controller-- of the presently claimed invention. Should the examiner disagree, the applicants request that the examiner else to **clearly and specifically** point out where Strolle discloses this feature in accordance with 37 C.F.R. 1.104(c)2.

Claim 4 includes limitations corresponding to those discussed above with reference to claim 1. Thus, the applicants respectfully submit that independent claim 4 and dependent claims 5-6 are also in condition for allowance for at least the reasons above.

New Claim 7 is added. Claim 7 recites --wherein the NRS decoding is performed before parity bytes, which are added to the robust data to secure backwards compatibility, are removed. As described above, Strolle removes the parity bits added for backwards compatibility before any Read Solomon decoding is performed (Strolle col. 11, lines 18-23 and col. 14, lines 25-27).

For the reasons set forth above, the applicants respectfully submit that claims 1-7, now pending in this application, are in condition for allowance over the cited references. Accordingly, the applicants respectfully request reconsideration and withdrawal of the outstanding rejections and earnestly solicit an indication of allowable subject matter.

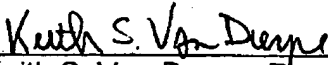
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This amendment is considered to be responsive to all points raised in the office action. Should the examiner have any remaining questions or concerns, the examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,

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